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File: DWPI

May 14, 1999

DERWENT-ACC-NO: 1999-337476

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TITLE: Preparation of oxidized cellulose using an enzyme as an oxidizing agent which generates an oxoammonium ion

INVENTOR: BUCHERT, J; KRUUS, K ; VIKARI, L

PRIORITY-DATA: 1997FI-0004139 (November 4, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>WO 9923117 A1</u>	May 14, 1999	E	016	C08B015/04
AU 9910351 A	May 24, 1999		000	C08B015/04
FI 9704139 A	May 5, 1999		000	C08B000/00

INT-CL (IPC): C08 B 0/00; C08 B 15/04; C12 S 3/00; D21 C 9/10

ABSTRACTED-PUB-NO: WO 9923117A

BASIC-ABSTRACT:

NOVELTY - The enzymatic oxidation of TEMPO (2,2,6,6-tetramethylpiperidin-- 1-oxyl) using a phenol oxidase as a natural oxidant, to form an oxoammonium ion useful in the oxidation of carbohydrates in cellulosic fibres.

DETAILED DESCRIPTION - Oxidized cellulose is prepared, by contacting a cellulose-containing material with a reactant and an oxidative enzyme as an oxidizing agent to produce an oxoammonium ion. The reaction is carried out in a liquid medium, and the reaction product is separated after the reaction.

INDEPENDENT CLAIMS are also included for modifying cellulose fibres by treating cellulose with chemically or enzymatically oxidized TEMPO. Pulp fibres are used, which are oxidized and obtained mechanically, chemically, chemimechanically or recycled.

USE - The process is useful in the production of paper having improved technical properties, flexibility, WRV and tear strength.

ADVANTAGE - The use of laccases replaces hazardous or toxic chemical oxidants.

DESCRIPTION OF DRAWING(S) - The reaction describes the oxidation of a stable nitroxyl radical to the oxoammonium ion, which oxidizes an alcohol group to an aldehyde, while the oxoammonium ion is simultaneously reduced to hydroxylamine.

Full

Title

GLS.1

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